

**To:** Myers, Craig[Myers.Craig@epa.gov]  
**Cc:** Petri, Elliott[Elliott.Petri@WestonSolutions.com]; Matt Francis (m.francis@erllc.com)[m.francis@erllc.com]  
**From:** Way, Steven  
**Sent:** Sun 9/13/2015 2:14:26 PM  
**Subject:** FW: Gold King  
[image001.png](#)  
[flow calcs lower section.pdf](#)

Craig and Elliott,

The decision was made to go with 8 inch, but I want to fully discuss this information below - and ideally with APTec. The Weston review suggested that 6 inch below the Laydown area to Gladstone may not be adequate. We do not have an feedback yet from APTec on the implications of 8 inch pipe (cost, install, etc), but we are assuming it's a small difference. We need to verify that.

This is probably the last opportunity to discuss this if needed. The final considerations that Craig and I discussed were the fact that there is some chance in the future that additional mine flow (e.g. R n B) might be combined with GK flow - not currently being considered. Also, we are not certain as to the potential for solids build up on the pipe wall, and that is more likely in the lower gradient section.

So, if you have any final thoughts on this given the APTec input below then let's do that Monday.

Thanks,  
Steve

Steven Way  
Federal On-Scene Coordinator  
Emergency Response Unit  
US EPA - Region 8  
1595 Wynkoop Street  
Denver, CO 80202

Office: 303-312-6723

-----Original Message-----

From: Matt Francis [mailto:m.francis@erllc.com]  
Sent: Wednesday, September 09, 2015 4:32 PM  
To: Way, Steven  
Cc: Marilyn Smith  
Subject: Fwd: Gold King

This sufficiently answer your question about flow from GK to Gladstone? If so I will proceed.

Sent via the Samsung Galaxy Note® 3, an AT&T 4G LTE smartphone

----- Original message -----

From: Eric Anderson <Eric@APTecUSA.com>  
Date: 09/09/2015 3:56 PM (GMT-07:00)  
To: Matt Francis <m.francis@erllc.com>, Ben Kneller <Ben@APTecUSA.com>  
Cc: "Petri, Elliott" <Elliott.Petri@WestonSolutions.com>, Dale Kneller <Dale@APTecUSA.com>  
Subject: RE: Gold King

Matt,

There is sufficient head in the system for the line to carry 1000GPM to Gladstone.

- From the laydown area to Gladstone there is approximately 280ft of drop (= 120psi of Head )
- Length from Laydown to Gladstone is approx. 2100ft

the first 2 attached sheets show the flow and line loss from the laydown to Gladstone.

- Considering a flat (no elevation loss/ gain) pipeline (6in DR11) at 1000 GPM there would be 90psi of pressure loss.
- Considering a flat (no elevation loss/ gain) pipeline (6in DR11) at 600 GPM there would be 35psi of pressure loss.

In the 3rd sheet we can see the potential of the gravity flow in that area considering

- A 5% slope the 6in DR11 pipe is capable of 600 GPM(Gravity flow 0 psi)
  - However the average grade from Laydown to Gladstone is >13%
- Additionally there is the potential of over 250 psi of head from the upper sections to maintain the flow.

Regards,  
Eric Anderson  
General Manager

[aptec logo sm bip]

From: Eric Anderson  
Sent: Wednesday, September 9, 2015 1:49 PM  
To: 'Matt Francis' <m.francis@erllc.com>; Ben Kneller <Ben@APTecUSA.com>  
Cc: Petri, Elliott <Elliott.Petri@WestonSolutions.com>  
Subject: RE: Gold King

Matt  
We do have the flow calculations and will get them to you today as soon as Ben returns to the office.

Eric

From: Matt Francis [mailto:m.francis@erllc.com]  
Sent: Wednesday, September 9, 2015 1:21 PM  
To: Ben Kneller <Ben@APTecUSA.com<mailto:Ben@APTecUSA.com>>; Eric Anderson <Eric@APTecUSA.com<mailto:Eric@APTecUSA.com>>  
Cc: Petri, Elliott <Elliott.Petri@WestonSolutions.com<mailto:Elliott.Petri@WestonSolutions.com>>  
Subject: Gold King

We're getting closer to having everything resolved to move forward with the Gold King pipe project. One

thing that has come up is the need for a calculation showing that the 6" line from the laydown area to Gladstone is capable of handling required flow rates.

With the elevation and routing information you have, can you provide a maximum flow rate for that section of the system? If you need additional information, please let me know and I'll try to assist.

Thanks

Matt Francis  
Environmental Restoration, LLC  
303.994.6611

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